

## NCTM 2012 Presentation # 7634, Campbell/West, **Using Photographs to Illustrate Math Stories**

### **Visualizing Math Stories**

*Visualizing Math Stories* is a multidisciplinary unit designed to engage students in solving mathematical problems through writing and photography. The goal of this project is for students to work in small groups to create math story books, illustrated with photographs and, where appropriate, charts. This project is standards-based, and meets objectives in mathematics, reading, language arts, visual arts, and technology. While the project as developed is aimed at 3<sup>rd</sup> graders, it can be adapted easily for younger and older students.

*Visualizing Math Stories* was piloted in 2012 with 23 third graders at Davis Magnet Elementary School in Jackson, Miss. The content of the pilot project stories – patterns and measurement – was dictated by the objectives in the district's pacing guides during the term in which we worked.

*Visualizing Math Stories* could be adapted to any mathematical concepts.

### Big Ideas

Mathematics is a language that is expressed visually, symbolically, and verbally.

In this project, all students will communicate mathematical concepts through written, oral, symbolic, and visual forms of expression.

### Standards

*Visualizing Math Stories* meets objectives outlined in the Common Core State Standards for Mathematics, the Common Core State Standards for English Language Arts, National Standards for Arts Education, and National Educational Technology Standards.

For a full list of the specific standards addressed in the 3<sup>rd</sup> grade pilot project, visit [www.sarahccampbell.com](http://www.sarahccampbell.com).

### Resources and Preparation

#### Equipment List

pencils  
lightweight paper 12" x 18" for storyboards (manilla paper works fine)  
watercolor paper (student grade) 22" x 30" for final books  
sticky notes  
scissors  
glue sticks or double-sided tape  
rulers  
markers  
digital cameras, media cards  
computer with internet access  
props for photographs (will be unique to each story)

#### Handouts/Instructions

Books and Online Resources

Writing Prompts

Elements of a Successful Math Story  
Writing a Math Story  
Make an Instant Book

## Instructional Plan

Read Growing Patterns

Examine trade books

- what do you notice?

Students select main topic

- brainstorm in teacher assigned groups

Analysis of teacher created stories

- Elements of a successful math story
  - teacher guided sample
  - independent student sample with questions
  - sample with missing elements

Graphic organizer

- teacher model with class input
- students work in topic groups
  - select story focus and complete graphic organizer
  - each student writes a story based on the graphic organizer

Group writing and revisions

- utilize the beginning, middle, end organizer, with students choosing best elements from each individual story

Storyboarding

- all students learn to make instant books, using manilla paper
- students work in groups to divide the text into page-sized chunks
- students work in groups to plan the photographs, assign photographers

Taking Photographs in Groups

- review images as they are taken, retake if necessary
- note the number of each selected photograph on its page in the storyboard book

(Teacher will get 4 x 6 prints made of student photographs)

Final Bookmaking

- students work in groups based on role (folder, chartist, assembler, scribe), which they've mutually decided upon
- folders (make instant books using good paper)
- chartists (make chart or graph to illustrate pattern or other concept, if needed)
- assemblers (using storyboard book as a guide, glue/tape photographs and chart in position)
- scribes (using storyboard, write text into book)

Have a Book Party